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Watershed Protection: A Project Focus

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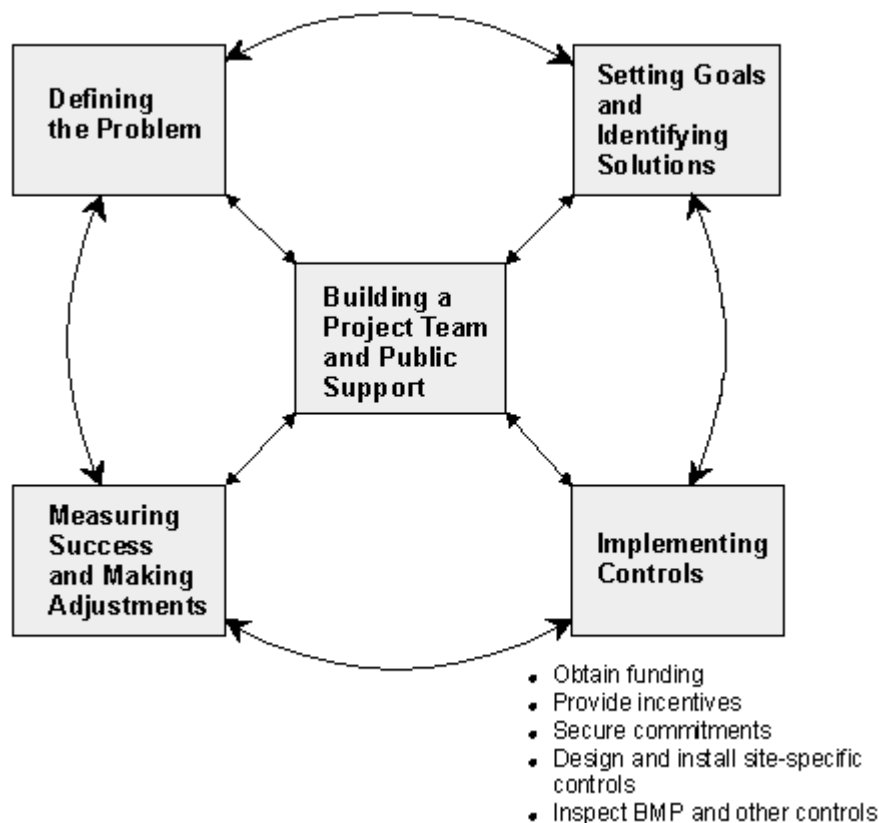
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Chapter 7: Implementing Controls

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This chapter discusses implementing the controls and restoration activities called for in a watershed action plan. Implementing pollution controls is actually a two-stage process. The first stage is political--reaching agreement among participating organizations that there is a problem and that solutions exist, and achieving commitments from agencies and others to adjust their priorities to implement these solutions. The second stage is both technical and administrative--making sure that agreed upon actions are carried out; controls are designed, installed, and operated correctly; funds are accounted for properly; implementation is proceeding on schedule; the public is aware of the project's progress; and effectiveness monitoring is being done properly.

If the watershed project has a project manager, he or she is ultimately responsible for the success of these technical and administrative tasks, as well as for leading efforts to secure funding. The manager must be knowledgeable about environmental conditions in the

watershed; knowledgeable about point and nonpoint source controls and restoration measures; aware of the policies and missions of the various cooperating agencies, citizen groups, and local governments; and supportive of all programs that are part of the project (not just the easy-to-implement or high-profile ones). To acquire this unique combination of knowledge and skills, the project manager should have access to a network of other watershed project managers through professional conferences and ongoing training.

Obtain Funding

Few watershed projects come complete with sufficient federal and state funding for all phases of the project. Most of the activities discussed in this document require funding and often are funded by multiple sources. One way to organize the search for funds is to divide activities listed in the watershed action plan into categories, then to seek the type of funds that match each category. Not all activities require "cash" funding; some may be completed by the work of cooperating agency staff.

Fund raising is a time-consuming activity. Each type and source of funds has its own application criteria, procedures, and deadlines. Project managers must allow sufficient time and resources for acquiring funds and in-kind assistance.

Early in the project, or as part of the watershed action plan, it may be helpful to establish a schedule for obtaining funds and in-kind support for the entire project. The schedule should document, for example: possible funding sources, application dates, dates funding is needed, and work to be done to obtain funding. The schedule can be organized by funding categories: educate, plan, install, monitor, and enforce.

A complete discussion of funding mechanisms and their requirements would have to be state-specific and therefore is beyond the scope of this report. Some broadly available funding sources are listed below. In working to obtain funding, it is important to recognize that it is difficult to obtain sufficient funds initially to carry out an entire watershed project. The best approach is to begin with the available resources, do an exemplary job on initial tasks, and clearly document success. Additional funds tend to become available to projects that have shown results and are organized so that results can be carried forward. Further, many watershed projects are successful because, in addition to new funding, existing resources are maximized. Highlight 14 describes how resources are maximized for Anacostia River Restoration Projects.

State and local funding sources include:

State General Assembly appropriation

State income tax credit

Bonds--general revenue and special purpose

State taxes--income, sales, luxury

Grants

Easements

Lotteries

Loans

Fees--hunting/fishing licenses; NPDES permit fees.

Some federal funding sources are described in Appendix C. More complete coverage of funding sources can be found in *State and Local Funding of Nonpoint Source Control Programs* (EPA, 1992e) and *Watershed Protection: Catalog of Federal Programs* (EPA, 1993b).

Provide Incentives

In watershed projects, most nonpoint source controls are installed on private property, yet the effects of these practices often do not directly benefit the discharger or landowner. To ensure that controls are implemented, some type of incentive is usually provided by society. Various types of incentives available across the country are listed in [Table 7-1](#).

For many years, cost-sharing has been viewed as the most effective method of securing landowner cooperation in a voluntary program. Cost-share rates have traditionally been set at 50 to 75 percent of the average cost of a BMP. State agriculture agencies and USDA agencies have extensive experience in implementing cost-share programs.

Evaluations of completed watershed projects have shown that:

Without vigorous, targeted, and effective education programs, technical assistance and cost-sharing alone often will not secure adequate BMP implementation

Regulatory programs can be effective. They often provide more equitable solutions and achieve clear results much faster than voluntary programs; however, regulatory programs that are poorly enforced or that do not contain effective education are only marginally more effective than voluntary cost-share programs.

The most successful projects appear to have used a mix of voluntary and regulatory incentives to achieve water quality results. The most effective of these offer variable cost-share rates, market-based incentives, and regulatory back-up coupled with support services (private and governmental) to keep the controls maintained and operating properly. [Highlight 15](#) describes tax incentives in the Puget Sound area.

Table 5. Types of Incentives for Installation of Controls in Watershed Projects

Type of Incentive or Motivational Factor	Description of Key Factors
Education	Programs that target key audiences and tailor the message to the audience are most effective in eliciting a behavior change. Can include technical education about operation and benefits of controls.
Technical assistance	One-on-one interaction between the professional water quality staff and the affected citizen, with recommendations about BMPs appropriate for the specific site in question. Includes on-site engineering or agronomic work during the installation of BMPs.
Tax advantages	Can be provided through state and local taxing authorities or by a change in the federal taxing system that rewards those producers who install BMPs.
Cost-share to individuals	Direct payment to individuals for installation of specific BMPs (e.g., terraces) has been effective where the cost-share rate is high enough to elicit widespread participation
Cross-compliance among existing programs	Generally a type of quasi-regulatory incentive/disincentive that conditions benefits received on meeting certain requirements or performing in a certain way. Currently in effect through the 1985 and 1990 Farm Bills.
Direct purchase of riparian corridors or of lands causing the greatest problems	Direct purchase of special areas for preservation has been used extensively by groups such as the Nature Conservancy; community-owned greenbelts in urban areas are another variation. Costs of direct purchase are generally high but effectiveness can also be exceptional. Sometimes used to obtain control of critical areas whose owners are unwilling to install BMPs.
Nonregulatory site inspections	A site visit by staff of local or state agencies can be a powerful incentive for voluntary installation of BMPs.
Peer pressure	Social acceptance by one's peers can be a motivational factor for installation of BMPs by some individuals. For example, if a

	community values the use of certain agricultural BMPs, producers in those communities are more likely to install them.
Direct regulation of land use and production activities	Regulatory programs that are simple, direct, and easy to enforce are quite effective. Such programs can regulate land use (through zoning ordinances) or the kind and extent of activity allowed (e.g., pesticide application rates), or can set performance standards for a land activity (such as retention of the first inch of runoff from urban property).
Incentives from private enterprises	Watersheds with successful nonpoint source projects often are backed by private enterprises that support the implementation and operation of the recommended BMPs. These companies supply services and equipment that individuals cannot afford to own or acquire. Without these services or equipment there is a tendency to neglect BMP maintenance once the financial incentive expires. Some examples include: firms specializing in animal waste lagoon pumpout and land application, companies that specialize in prescribed burning for brush control and range management, and professional associations skilled in integrated pest management techniques.

Highlight 14**Securing Funding for Anacostia Restoration Projects**

The Anacostia Watershed Restoration Committee annually seeks funding for many restoration projects. In FY91, more than 50 projects were funded by over a dozen local, state, and federal agencies. Funding sources are matched with appropriate watershed projects. In about half a dozen cases, special funding came from federal agencies (the Corps of Engineers, USDA, and EPA). The overwhelming majority of projects, however, involved a skillful coordination of existing sources of support from state and local governmental programs combined with additional help from nongovernmental organizations such as Trout Unlimited and from other citizen volunteers. The signatory agencies (the District of Columbia, Prince George's and Montgomery Counties, and the state of Maryland) fund most of the stormwater retrofit, monitoring, and demonstration projects and public participation activities.

A key element in maximizing resources from existing programs is the organization of special technical assistance teams for priority sub-watersheds. Sub-watershed Action Plan (SWAP) coordinators carry out public education and outreach efforts, but also assist in comparing management needs for their sub-watersheds with activities of local government. Because many of the problems in the Anacostia relate to urban stormwater runoff, many infrastructure projects can have a bearing on restoration needs. Where such infrastructure projects are identified, SWAP coordinators pursue ways to involve them in the Anacostia program and to obtain funding from them for retrofit and management objectives.

The Anacostia Watershed Restoration Committee is also in a position to coordinate with large-scale projects (and funding) by such stakeholders as the state of Maryland and the Corps of Engineers. Careful coordination with existing programs and resources is one key to the success of the Anacostia program.

Source: MWCOG, 1990.

Highlight 15**Tax Incentives in the Puget Sound Basin****Tax Incentives in the Puget Sound Basin**

Several counties in Washington state have adopted open space tax plans to give citizens incentives to designate land for conservation. In Kitsap County, for example, landowners may be eligible for up to 90 percent tax reductions for voluntarily setting aside wetlands, stream corridors, and other sensitive areas on their property.

Source: Puget Sound Water Quality Authority, 1991

Secure Commitments

Two types of commitments are needed for effective watershed protection:

Commitments with the agencies, groups, and businesses that will be funding and carrying out programs that involve controls and restoration activities

Commitments with individuals, businesses, municipalities, etc., that will actually install the controls and other measures.

The fundamental question is "How do you make people honor their commitments?" The reality is that people and organizations often have different views on what constitutes "acceptable," and unforeseen circumstances sometimes alter the ability of participants to fulfill commitments. Two tools that have proven effective in securing (and keeping) commitments are formal written agreements and public accountability.

Formal agreements--To avoid disappointment and misunderstanding, agreements on all topics (no matter how trivial) are best documented in writing. Agencies often use a formalized process known as the Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA) to document commitments and positions on certain topics. Such agreements should be specific as to the actions to be taken by each party, should include a conflict resolution process in the event of misunderstandings, and should include definitions of terms that may mean different things to different people.

Keeping the project moving often involves compromise--each participant agreeing to one or two small commitments without an accompanying increase in funding. Sometimes larger commitments follow after success has been demonstrated in meeting the smaller commitments.

Public accountability--One of the best ways to keep work focused on the watershed project's critical actions is through public accountability of all participants in the project. For example, once written commitments are secure, arrange to have periodic public meetings at which participants present detailed updates on the progress being made on each specific task.

Design and Install Site-specific Controls

The design and installation of *point source controls* is well-established after decades of wastewater treatment plant construction. *Nonpoint source controls*, *critical area protection*, and *habitat restoration measures* must be tailored to factors such as hydrology, geology, topography, soils, capability of the landowner, and resource to be protected. Discussion of specific controls is beyond the scope of this report, but a compendium of management practices for most categories of nonpoint sources is available (EPA, 1992d).

In addition, technical reports by federal, state, and local agencies are good sources of information on the design, installation, and operation of BMPs and restoration measures. Reports on appropriate control techniques are available from USDA agencies and state nonpoint source control agencies. Figure 6-1 lists a few references on the selection and installation of nonpoint source BMPs. In designing site-specific controls, technical support from agency experts is essential. For example, NRCS, state soil and water agencies, state agricultural agencies and land-grant universities have decades of experience applying agricultural BMPs.

Timing is also crucial--project teams should be sure to schedule enough time for this labor-intensive step. The availability of agency staff or contractors is often a limiting factor and planners must consider this factor when scheduling BMP or restoration measure implementation, especially in areas with a high seasonal demand for these services. Again, the project manager and committees should have access to reports and feedback from staff at other watershed projects that have dealt with similar technical and institutional issues. Each project team should be allowed to make its own mistakes, without repeating the mistakes already made by others.

Inspect BMPs and Other Controls

Assuming the correct BMPs and other controls have been selected and are well designed, they will still be ineffective if not properly installed. In fact, poor installation can make matters worse by concentrating flow or causing some other hydrologic disruption. Inspection by qualified professionals during and after construction is therefore essential. In this regard, many nonpoint source control programs are inadequate and water quality problems persist unnecessarily. However, even professionals sometimes disagree as to the adequacy of BMP installation, so reaching agreement on what constitutes a properly installed and operated BMP or restoration measure and who will do the inspections is important.

In addition to post-construction approvals, a permanent inspection program is needed to ensure proper maintenance of controls. Most BMPs for urban and rural runoff are subject to severe loss of effectiveness if not properly maintained. For example, urban stormwater control structures require periodic unclogging and cleaning out of sediments and debris; lagoons for animal operations require removal of waste.

One approach that has worked well during forestry BMP inspections has been the formation of multidisciplinary, multiagency teams of government foresters, logging representatives, and biologists to randomly spot check BMP installation on all types of forest land (public, corporate and individually owned). At other times, each agency or industry checks BMPs within its normal jurisdiction. This type of quality assurance/quality control activity has two benefits: (1) it builds confidence in unbiased and equitable installation of BMPs; and (2) it serves as a way diverse individuals can arrive at a common definition of adequate BMPs.